Amendments to Claims

This listing of the claims will replace all prior versions, and listing, of claims in the application:

1.(currently amended) A method of motion compensation for a head mounted display[[~~s~~]] (HMD) wherein a camera tracks movement, subject to possible delay, of an operator's head to capture images within a field of view controlled by the orientation of the operator's head, comprising the steps of:

~~providing~~ sending a sequence of captured images at a video capture rate from ~~an image capture device~~the camera to a processor associated with the head mounted display ~~to a head mounted display including a display having a field of view~~;

~~providing~~ obtaining camera position data identifying the field of view of the camera for each captured image ~~relating to a position of the camera and associated with the captured image~~;

associating said camera position data with the corresponding captured images;

providing HMD position data ~~relating~~ corresponding to a current position of the head mounted display;

for each captured image received by the computer comparing the HMD position data with the camera position data associated with the captured image to determine whether an offset exists between a first field of view associated with the captured image and a second field of view corresponding to the current position of the head mounted display;

in the absence of a said offset displaying the captured image or a portion thereof in the head mounted display; and

in the presence of a said offset, transforming the captured image to ~~vary a displayed location of static objects within the image relative to the field of view in accordance with the camera position data and the HMD position data~~create a transformed image comprising a portion of said captured image that overlaps said first and second

fields of view and displaying said transformed image in the head mounted display in a part of said second field of view, the position of said part of said second field of view in the head mounted display corresponding to the position of the overlapping portion of the captured image in the second field of view.~~; and~~

~~displaying portions of the image at the displayed locations, those portions remaining within the field of view~~

2. (canceled)

3.(currently amended) A method according to claim[[~~2~~]] 1, wherein ~~portions~~ a remaining part of said second ~~of the~~ field of view ~~for which image data is unavailable are~~not displaying said transformed image is filled with a predetermined fill.

4.(currently amended) A method according to claim 3, wherein the predetermined fill has features to assist the operator in ~~for~~ maintaining personal orientation ~~of a wearer of the head mounted display~~.

5. (currently amended) A method according to claim 1, wherein the captured image is larger than ~~the image necessary to fill~~ the field of view of the head mounted display, and ~~wherein~~ only a portion of the captured image is displayed therein.

6.(canceled)

7.(currently amended) A method according to claim 1, wherein ~~the system comprises: an~~ a first independent position sensor ~~for sensing~~senses the camera position and ~~for providing~~ provides the camera position data.

8.(currently amended) A method according to claim 7, wherein ~~the system comprises:~~

~~an~~ a second independent position sensor ~~for sensing~~ senses the head mounted display position and ~~for providing~~provides the HMD position data.

9.(currently amended) A method according to claim 1, wherein ~~the system comprises:~~

an independent position sensor ~~for sensing~~senses the head mounted display position and ~~for providing~~ provides the HMD position data.

10.(currently amended) A ~~method~~ motion compensation apparatus according to claim 18, ~~wherein the system comprises~~further comprising:

a mechanism for moving the camera; and

~~means~~ a communications link for transmitting the HMD position data to a system in ~~communication~~ controlling ~~with~~ the mechanism for moving the camera[[;]].

~~wherein the mechanism for moving the camera moves the camera in response to a change in HMD position data.~~

11.(original) A method according to claim 1, wherein the HMD position data comprises orientation data.

12.(original) A method according to claim 11, wherein the camera position data comprises orientation data.

13.(original) A method according to claim 12, wherein the camera position data comprises displacement data.

14.(original) A method according to claim 1, wherein the HMD position data comprises displacement data.

15.(original) A method according to claim 14, wherein the camera position data comprises displacement data.

16.(original) A method according to claim 15, wherein the camera position data comprises orientation data.

17.(currently amended) A method according to claim 1, ~~comprising~~wherein the camera includes a range sensor to capture depth data, and the captured images are transformed using said depth data ~~the step of transforming the image~~ to reduce perspective distortion[[,]] ~~wherein the camera includes a range sensor~~.

18.(currently amended) A motion compensation apparatus for a head mounted display[[~~s~~]] (HMD) wherein camera tracks movement, subject to possible delay, of an operator's head to capture images within a field of view controlled by the orientation of the operator's head, comprising:

~~a~~ said head mounted display including a monitor having a field of view for displaying ~~portions of an image at displayed locations, those portions remaining within the field of view~~captured images;

a first processor associated with the head mounted display for receiving captured images for display in said head mounted display;

~~an image capture device~~said camera for sending a sequence of captured images at a video capture rate to said first processor ~~providing a captured image to a head mounted display including a monitor having a field of view~~;

a first sensor for providing camera position data relating to a position of the camera for each captured image; ~~and associated with the captured image;~~

a second processor for associating the camera position data with the corresponding images sent to the first processor;

a second sensor for providing HMD position data relating to a position of the head mounted display; and

said first processor, for each captured image received thereby, comparing the HMD position data with the camera position data associated with the captured image to determine whether an offset exists between a first field of view associated with the captured image and a second field of view corresponding to the current position of the head mounted display; and

in the absence of a said offset said first processor displaying the captured image or a portion thereof in the head mounted display; and

in the presence of a said offset, said first processor transforming the captured image to create a transformed image comprising a portion of said captured image that overlaps said first and second fields of view and displaying said transformed image in the head mounted display in a part of said second field of view, the position of said part of said second field of view in the head mounted display corresponding to the position of the overlapping portion of the captured image in the second field of view~~a processor for transforming the image to vary a displayed location of static objects within the image relative to the field of view in accordance with the camera position data and the HMD position data~~.

19.(currently amended) A motion compensation apparatus ~~for head mounted displays~~ according to claim 18, wherein the ~~image capture device~~camera ~~comprises~~ includes a range sensor.

20.(currently amended) A motion compensation apparatus ~~for head mounted displays~~ according to claim [[19]] 18, wherein the ~~range sensor includes a stereoscopic imaging~~ camera forms part of a three-dimensional vision system.

21.(currently amend) A method according to claim [[~~2~~]] 1 wherein, ~~comprising the step of:~~

when ~~portions~~ parts of the second field of view for which image data is unavailable are detected, ~~determining~~ earlier captured image data is located, which ~~that~~ when transformed in dependence upon its associated camera position data and the HMD position data is for display within ~~the portions~~said parts; and,

the transformed earlier captured image data ~~displaying~~ is displayed ~~with those~~ in those parts ~~portions~~ of the field of view ~~the transformed earlier captured image data~~.

22. (currently amended) A method according to claim 21, wherein ~~the step of displaying transformed earlier captured image data includes a step of de-emphasising~~ the transformed earlier captured image data is de-empasized relative to current captured image data.